

6. ACCIDENT PREVENTION PROGRAM

The TAN activities present numerous potential chemical, radiological, and physical hazards to personnel conducting the required tasks. It is critical that all personnel understand and follow the task-specific requirement of this HASP. Engineering controls, hazard isolation, specialized work practices, and the use of PPE will all be implemented to eliminate or mitigate all potential hazards and exposures. However, every person on the site must know their role in the identification and control of hazards.

6.1 Integrated Safety Management and Voluntary Protection Program

The Integrated Work Control Process (IWCP) is the method by which the Integrated Safety Management System (ISMS), Enhanced Work Planning (EWP), and Voluntary Protection Program (VPP) are implemented for maintenance and construction work activities. It provides a single process by which all maintenance and construction work on the INEEL is performed. It ensures that the work is screened consistently to uniform criteria and that hazards are appropriately identified, analyzed, and controlled.

6.1.1 Integrated Safety Management System

The ISMS has five core functions:

1. Define the scope of work
2. Analyze hazards
3. Develop/implement controls
4. Perform work within controls
5. Provide feedback/improvement

These five core functions are being implemented through the IWCP by implementing the following steps:

- Identify the need to do work
- Determine category of the work (e.g., maintenance related, Type 1, 2, 3 work order)
- Hazard analysis process
 - Preapproved hazard analysis
 - Hazards identification and mitigation checklist
 - Facility hazards list
 - Walkdown checklist
- Determine planning level (Low/medium/high level)

- Develop work control packages
- Workability walkdown/prejob briefing (perform the work)
- Conduct postjob review
- Document and close-out the work, lessons learned/history file.

6.1.2 Voluntary Protection Program

The INEEL's safety process embraces the VPP criteria, principles, and concepts. All levels of management are responsible for implementing safety policies and programs and for maintaining a safe and healthful work environment. Project personnel and subcontractors are expected to take a proactive role in preventing accidents, ensuring safe working conditions for themselves and fellow personnel, and complying with all work control documents and approved procedures.

The VPP is a process that promotes and encourages continuous safety improvement. The VPP is not a requirement of any regulatory agency. The Maintenance and Operations (M&O) contractor and subtier contractors participate in VPP voluntarily for the safety of their employees. VPP incorporates five key elements:

1. Management Commitment to safety and health is demonstrated through their visibility in the workplace and providing the necessary resources.
2. Employee Involvement means that employees have an active and meaningful role in contributing to the structure and operation of the safety and health program. This involvement results in ownership of the safety and health program by all employees.
3. Work Site Analysis includes analysis of new facilities and processes, comprehensive safety and health surveys, routine self assessments, a reliable system for employees to report hazards, and an accident/incident investigation system and trend analysis.
4. Hazard Prevention and Control means that written safety rules and safe work practices must be in place to eliminate and/or control hazards.
5. Safety and Health Training is provided to all employees to ensure that they know what their responsibilities are and what is necessary to protect them from safety and health hazards.

6.2 General Safe-work Practices

The following procedures are mandatory for all OU 1-07B and subcontractor personnel working on the site. All site visitors entering the site area (SZ and beyond) must follow these procedures. **Failure to follow these practices may result in permanent removal from the site and other disciplinary actions.** The CE and HSO are responsible for ensuring these hazard control practices are followed at the site:

- Limit access to authorized OU 1-07B, subcontractor, and visitor personnel only.
- All personnel have the authority to initiate **STOP WORK** actions. INEEL *Safety and Health Manual*, MCP-553, "Stop Work/Shut Down Action," shall be used.

- Absolutely no eating, drinking, chewing gum or tobacco, smoking, applying cosmetics, or any other practice that increases the probability of hand-to-mouth transfer and ingestion of materials except in designated zone(s).
- Be aware of and comply with all safety signs, color codes, and barriers. Adhere to INEEL *Safety and Health Manual 14A*, MCP-2714, "Safety Signs, Color Codes, and Barriers."
- Be alert for dangerous situations, strong or irritating odors, airborne dusts or vapors, and broken containers. Report all potentially dangerous situations to the CE or HSO.
- Avoid direct contact with potentially contaminated substances. Do not walk through spills or other areas of contamination. Avoid kneeling, leaning, or sitting on equipment or ground that may be contaminated.
- Be familiar with the physical characteristics of the site, including, but not limited to:
 - Wind direction
 - Accessibility of fellow personnel, equipment, and vehicles
 - Communications at the site and with other nearby facilities
 - Areas of known or suspected contamination
 - Major roads and means of access to and from the site
 - Nearest water sources and fire fighting equipment
 - Warning devices and alarms
 - Capabilities and location of nearest emergency assistance.
- Report all broken skin or open wounds to the HSO or CE. A INEEL physician will determine if the wound presents a significant risk of internal chemical or radiological exposure. The OMP physician will consider how the wound can be bandaged and will recommend PPE to be worn by the injured employee. **Personnel with unprotected wounds shall not be permitted to enter chemical or radiological CAs, nor shall they handle contaminated or potentially contaminated materials at the site without having been examined by a INEEL OMP physician.**
- Prevent releases of HAZMATs, including those used at the site. If a spill occurs, try to isolate the source (if possible, and if this does not create a greater exposure potential), then report it to the CE or HSO. The TAN shift supervisor will be notified and additional actions taken as described in Section 11.1.3. Appropriate spill response kits, or other containment and absorbent materials, will be maintained at the site.
- Avoid unnecessary and excessive movement during decontamination.
- Electrical equipment, wiring, cables, switches, and current overload protection will meet applicable regulations and will be maintained in a manner that provides protection for

project personnel from shock hazards and injury, and prevents property damage. Ground-fault protection will be provided whenever outdoor electrical equipment is used.

- Keep all ignition sources at least 15 m (50 ft) from explosive or flammable environments and use non-sparking, explosion-proof equipment if advised to do so by a safety professional.
- Personnel working in the exclusion or controlled access zone shall implement the “buddy system” (see Section 6.4 of this HASP).
- Proceed directly to a radiological survey station upon leaving a radiologically contaminated zone. Care should be taken not to touch the face, mouth, and eyes before a survey has been performed.
- Personnel who wear contact lenses shall comply with the INEEL *Safety and Health Manual 14A*, MCP-2716, “Personal Protective Equipment.”

6.3 ALARA Principles

Personnel working at the task site must strive to keep radiation and chemical exposure ALARA through the following practices:

- RWP and SWP compliance
- Radiation and chemical exposure limit awareness
- Adhere to all written radiological and chemical safety requirements and verbal guidance
- Be aware of personal radiation and chemical exposure history
- Work within ALARA guidelines and make suggestions as needed
- Minimize the production of all radioactive and chemical contaminated waste
- Minimize personal radiation and chemical exposure by adhering to these basic protection techniques:
 - *Time*—Exposure is minimized as time is minimized
 - *Distance*—Maintain a maximum distance from the radiation and/or chemical source
 - *Shielding*—Use any solid material (i.e., lead, steel, concrete, PPE clothing) as a shield
 - *Ventilation*—Use to appropriate systems to control airborne exposures.

6.4 The Buddy System

The “buddy system” will be used at the task site when employees have entered into the exclusion zone. The buddy system requires employees to assess and monitor their buddy’s mental and physical

well being during the course of the workday. Task-site personnel will be assigned a “buddy” by the CE to work with and continually check on while work is performed in the exclusion zone. Employees need to be able to see or hear and effectively communicate with their buddy at all times when in the exclusion zone. Everyone should watch for signs and symptoms of illness or injury in their assigned “buddy.”

7. SITE CONTROL AND SECURITY

Based on the actual or expected levels of contamination or work activity, employee exposure to radiological and/or chemical releases or exposures at one or more work zones/radiological areas must be established for the task site. Entry into task-site work zones must be controlled through the appropriate use of barriers, signs, and other measures (refer to *INEEL Safety and Health Manual*, MCP-2714). Employees not directly involved with the activity shall be excluded from entering work zones. Nonworkers, such as inspectors, may be admitted to the task site provided they are on official business, are escorted by the HSO or CE, and have demonstrated compliance with the training requirements in Section 4. Figure 7-1 shows the OU 1-07B task-site boundaries and work zones.

Note: *The HSO, IH, and RADCON will assist the FTL, CE, and JSS in establishing the EZ, contamination reduction zone (CRZ), and SZ for the project based on IH exposure assessment, site characterization, and RADCON radiological evaluations (see Section 7.1).*

Posting requirements for radionuclide contaminated areas must also be included when such hazards exist at the task site. The *INEEL Radiation Protection Manual*, MCP-187, "Posting Radiological Control Areas" shall be used for posting and controlling access to radiologically controlled areas.

7.1 Exclusion Zone

The exclusion zone includes the immediate work area around the chemical/radiological contamination area. The minimum number of employees required to safely perform the required operations will be allowed into the exclusion zone. The exclusion zone is a controlled access zone, at all times.

Note: *Nonsite personnel are not permitted in the EZ without proper escort and satisfying the appropriate training requirements for being in the EZ.*

Exclusion zones for remote activities such as drilling, probing, and logging activities are the actual well locations. Outer zones are roped off and posted as a CERCLA area usually followed with words like: "This Area is Controlled by the OU 1-07B Health and Safety Plan." Additional posting (e.g., specific PPE are required for entry) may also be posted. Radiological postings such as radiological buffer area (RBA) or radiological materials area (RMA) are established as required by the *INEEL Radiation Protection Manual*, MCP-187 or as directed by RCT personnel. Exclusion zones at the OU 1-07B treatment facilities are roped off in areas within the sea vans (i.e., bag filter areas and specific areas during piping replacement and/or repairs). The OU 1-07B treatment facilities and related task areas are also fenced off as work control zone/CRZ and are posted as indicated above. Postings are placed on the fence lines indicating the area is CERCLA and controlled by the HASP. Additional postings are as follows: the fence line contains radiological postings (e.g., identifying all internal systems as potentially radionuclide contaminated). Emergency numbers and safety information is also posted at the facility.

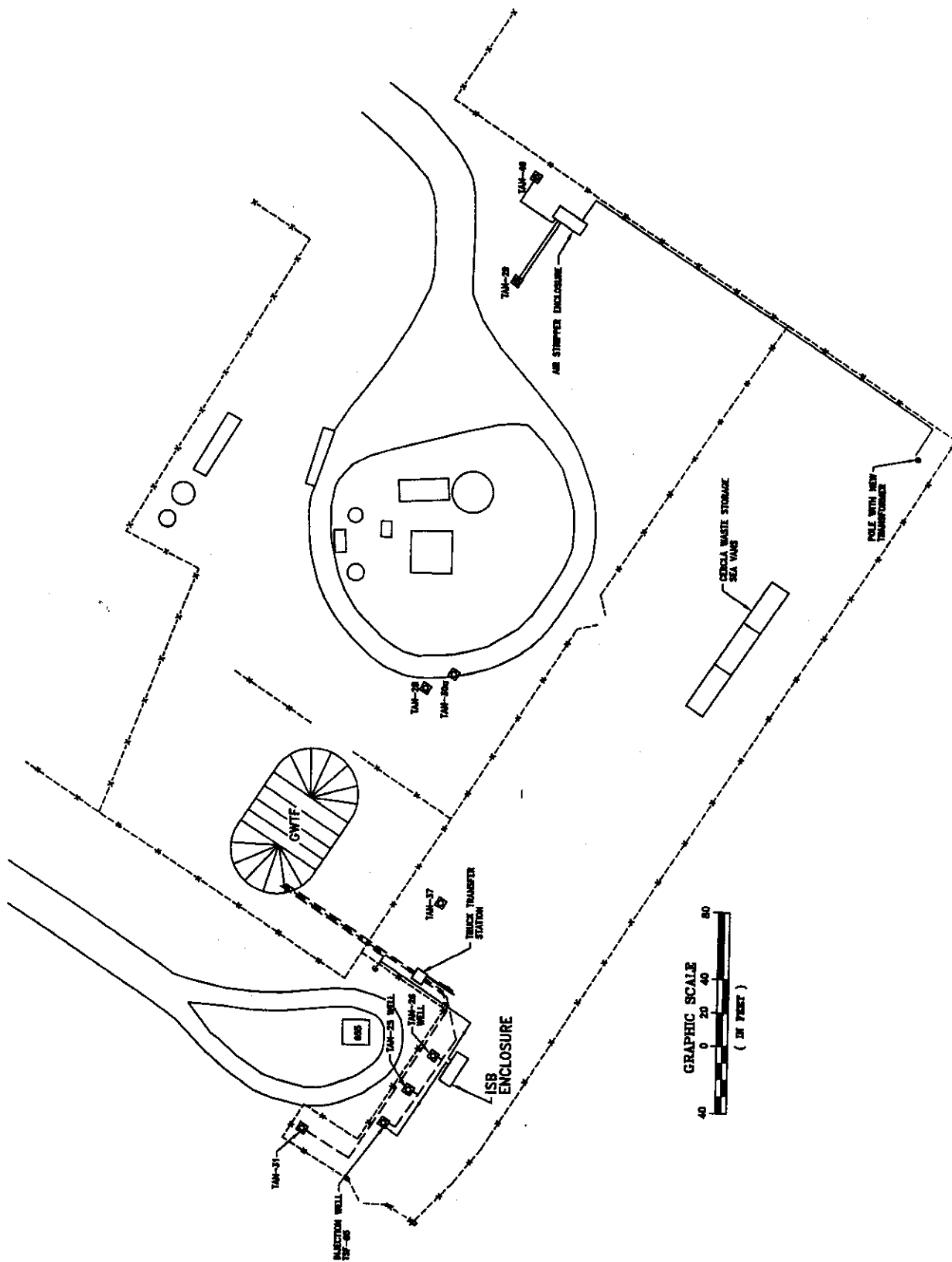


Figure 7-1. Established work zones for the task site.

7.2 Work Control Zone/Contamination Reduction Zone

The work control zone/CRZ is a transition area between the exclusion zone and the support zone. A designated portion of this zone will serve as a decontamination area for equipment and a PPE removal area for work operations personnel. The work control zone/CRZ may serve as a staging area for equipment, a work control zone, and temporary rest area for workers. Because of the potential for contamination, PPE and sample packaging and preparation equipment should not be stored here.

Note: *Nonsite personnel are not permitted in the CRZ without proper escort and satisfying the appropriate training requirements for being in the CRZ.*

The work control zone/CRZ for the facility and related areas are the fenced areas surrounding the OU 1-07B project and storage areas. The sizes of these zones are shown on the site layout drawing. The CRZ for down-hole well probing, pump tests, logging, and drilling operations will be roped off and posted as CERCLA areas with signs designating that the area is controlled by the OU 1-07B HASP. These areas are normally 9 × 9 m (30 × 30 ft) or larger in size. The work control zone/CRZ for drilling and logging activities is also a work control for supporting equipment.

7.3 Support Zone

The support zone is the area outside the work control zone/CRZ. The support zone for the OU 1-07B project contains vehicle parking, additional equipment staging, and any work site support activities. The CE or designee will maintain logs by recording the names of personnel entering CERCLA sites. Support zones are set up and vary in size according to individual tasks.

Note: *Additional zones may also be required at the doorway of sea vans to support, for example, construction activities in radionuclide contaminated systems.*

7.4 Designated Eating Area

Ingestion of hazardous substances is likely when workers do not practice good personal hygiene habits. It is important to wash hands, face, and other exposed skin thoroughly after completion of work and before smoking, eating, drinking, and chewing gum or tobacco. ***No smoking, chewing, eating, or drinking is allowed at the work site***, except in an area that is designated as an eating area. The designated eating area at the work site will be in Building 607 or the cafeteria. For work in remote areas (drilling, logging, etc.), eating areas may be established with approval from the IH and RCT. These areas must be established where no potential contamination or hazards are present.

8. HAZARD EVALUATION

8.1 Hazard Assessment

Employees may be exposed to industrial safety hazards, or chemical, radiological, and/or physical agents while working at the task site. The degree of hazard(s) posed to onsite personnel entering the work zones is dependent on both the chemical/radiological nature of the contaminant(s) and the task(s) being performed. Table 8-1 summarizes each task and the associated hazards. Table 1-1 contains validated results showing the range of contaminant concentrations, hazardous chemicals, and radiological/radiation exposure components present at the task site.

The organic compound concentrations vary according to plume location. Figure 1-3 indicates concentrations within the majority of OU 1-07B task sites. Table 8-2 identifies the hazardous/radioactive materials potentially present at the task site. Direct radiation levels will normally be less than the 1-mrem ALARA goals assigned to all personnel working at the task site.

The OU 1-07B project currently follows the OSHA Hazard Communication Standard. As a result, the project has in place a chemical tracking program to include a binder containing copies of the MSDSs. This binder identifies all chemicals associated with the facility.

The OU 1-07B activities have been evaluated according to Chapter 3 of the INEEL *Radiation Protection Manual*. As a result of this evaluation, it has been determined that a RWP, in accordance with INEEL *Radiation Protection Manual*, MCP-7, "Radiological Work Permits," is not required.

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| Note: The RWPs will be used if any of the action levels (ALs) are exceeded for individual tasks. |
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8.2 Environmental and Employee Monitoring

Personnel working at the task site may be exposed to hazard materials or hazardous physical agents, as already described. Industrial safety hazards and other physical hazards will be monitored and controlled as outlined in Section 8.3. Specific hazardous agent exposures that will be monitored are indicated in Table 8-3. Industrial hygiene and radiological monitoring plans and their ALs are described in Sections 8.2.1 and 8.2.2.

8.2.1 Industrial Hygiene Monitoring

The IH may use the equipment listed in Table 8-4 on the task site to monitor chemical and (nonradiological) physical agents.

The IH will maintain and calibrate all IH equipment per the manufacturer's recommendations, existing IH protocol, and/or in conformance to the INEEL *Safety and Health Manual*.

Table 8-1. OU 1-07B tasks and associated hazards/hazardous agents.

| Activity or Task | Associated Hazards or Hazardous Agents |
|--|---|
| Treatment facility normal operations and water sampling. | Organic vapor exposure, industrial safety hazards, radionuclide contamination, and back strain. |
| Hydrologic tracer tests. | Organic vapor exposure and radionuclide contamination. Spills, leaks, industrial hazards. |
| Characterization sampling. | Organic vapor exposure, radionuclide contamination, spills, and industrial safety hazards. |
| Equipment decontamination (including spills). | Organic vapor exposure, radionuclide contamination, and industrial safety hazards. |
| Handling and packaging spent carbon, ion exchange resin, multi-media filters, bag filters, and CERCLA waste. | Organic vapor exposure, radionuclide contamination, direct radiation, spills, leaks, and industrial safety hazards. |
| Maintenance of treatment system components. | Volatile organic compounds (VOCs), spills, leaks, direct radiation, and radionuclide contamination. |
| GWTF bag filter change out. | VOCs, spills, leaks, direct radiation and radionuclide contamination. |
| CERCLA waste inspections. | VOCs, spills, leaks, industrial safety hazards, direct radiation, and radionuclide contamination. |
| Field laboratory analysis work. | Radionuclide contamination, gas cylinders, cryogenics, containerized gases, and industrial safety hazards. |
| System upgrades/hardware replacement (valves, pumps, tanks, piping, solids removal equipment, etc.). | VOCs, spills, leaks, industrial safety hazards, direct radiation, and radionuclide contamination. |
| Mechanical surge and stress. | Overhead hazards, VOCs, leaks, industrial safety hazards, direct radiation, spills, leaks, and radionuclide contamination. |
| Treatment facility construction (steel erection, pipe fabrication, civil, etc.). | Industrial/construction safety hazards. |
| Construction tie-ins to existing lines. | Industrial/construction safety hazards, VOCs, direct radiation, radionuclide contamination, spills, and leaks. |
| Field tests and well pumping tests, in support of treatability study field evaluations. | Overhead hazards, industrial safety hazards, VOCs, direct radiation, radionuclide contamination spills, strong oxidizers, and leaks. |
| Groundwater monitoring ([quarterly and annual sampling activities] routine and statistical sampling activities). | Industrial safety hazards, VOCs, direct radionuclides, spills, leaks, and radionuclide contamination. |
| Well drilling. | Overhead hazards, industrial/construction safety hazards, VOCs, direct radiation, spills, leaks, radionuclide contamination, noise, skin and eye irritants, chemical compounds, and fire. |

Table 8-2. Hazardous/radionuclide materials potentially present at the task site.

| Name | Exposure Limits ^{a,b} | Color/Odor | State | Routes | Target Organs/Signs and Symptoms |
|--------|--|--|---|---|--|
| PCE | ACGIH TLV—25 ppm ACGIH STEL—100 ppm NIOSH REL—minimize exposure OSHA PEL—100 ppm 685 mg/m ³ TWA 689 mg/m ³ TWA | Colorless, mild/ chloroform odor | Gas vapor or liquid; that may be dissolved in water, or adsorbed onto activated carbon | Skin, ingestion for liquids; inhalation for gaseous state | Liver, kidneys, eyes, skin, upper respiratory system, central nervous system (CNS)/irritates eyes, nose, throat; nausea, flushed face, neck; vertigo, dizziness, uncoordination, headache, drowsiness, skin redness, liver damage; liver tumors in animals. Carcinogen. |
| TCE | ACGIH TLV—50 ppm ACGIH STEL—100 ppm NIOSH REL—25 ppm OSHA PEL—100 ppm OSHA CIEL—200 ppm 269 mg/m ³ TWA 537 mg/m ³ 137 mg/m ³ TWA 546 mg/m ³ TWA 683 mg/m ³ | Colorless (unless dyed), mild chloroform odor | Gas vapor or liquid; that may be dissolved in water or adsorbed onto activated carbon | Ingestion for liquids, inhalation for gaseous state | Irritates eyes and skin; respiratory system, heart, liver, CNS/headache, vertigo, vision disturbance, tremors, somnolence (drowsiness), nausea, vomiting, eye irritation, dermatitis, cardiac arrhythmia, paresthesia. Carcinogen. |
| DCE | ACGIH TLV—200 ppm NIOSH REL—200 ppm OSHA PEL—200 ppm 793 mg/m ³ TWA 790 mg/m ³ 790 mg/m ³ | Colorless | Gas vapor or liquid that may be dissolved in water or adsorbed onto activated carbon | Ingestion for liquids, inhalation for gaseous state | Respiratory system, CNS/eye irritation, depression. |
| Sr-90 | DAC—2.0 E-9 μ Ci/mL Lung Retention Class Y | Silvery white solid, colorless in dissolved state in water | Ionic state dissolved in water or as precipitate inside lines/vessels or in resins | Inhalation, ingestion, skin | Gastrointestinal system, red marrow, bone surfaces, CNS/carcinogenic, mutagenic. |
| Am-241 | DAC—2.0 E-12 μ Ci/mL Lung Retention Class W | Silver solid, colorless in dissolved state in water | Ionic state, dissolved in water or as precipitate inside lines/vessels or in resins | Inhalation, ingestion, skin | Gonads, red marrow, bone surfaces, liver/carcinogenic, mutagenic. |

Table 8-2. (continued).

| Name | Exposure Limits ^{a,b} | Color/Odor | State | Routes | Target Organs/Signs and Symptoms |
|---------------|--|---|--|-----------------------------|---|
| Cs-137 | DAC—7.0 E-8 $\mu\text{Ci/mL}$ Lung Retention Class D | Silver-white solid or colorless in dissolved state in water | Ionic state dissolved in water or as precipitate inside lines/vessels or in resins | Inhalation, ingestion | Spleen, kidney, and cellular damage to soft tissues/carcinogenic, mutagenic, whole body radiation, hyperirritability. |
| U-234 | DAC—2.0 E-11 $\mu\text{Ci/mL}$ | | | | |
| U-235 | Lung Retention Class Y | Silver-white solid or colorless in dissolved state in water | Ionic state dissolved in water or as precipitate inside lines/vessels or in resins | Inhalation, ingestion | Bone cellular damage (red marrow and bone surface), kidneys, and lungs. |
| U-238 | | | | | |
| Co-60 | DAC—1.0 E-8 $\mu\text{Ci/mL}$ Lung Retention Class Y | Steel-gray | Solid | Inhalation, ingestion, skin | Lungs, skin, heart, liver, kidneys, and blood. |
| Pu-238 | DAC—7.0 E-12 $\mu\text{Ci/mL}$ Lung Retention Class Y | Silver | Solid | inhalation, ingestion, skin | Bone surfaces. |
| Pu-239 | DAC—6.0 E-12 $\mu\text{Ci/mL}$ Lung Retention Class Y | | | | |
| Pu-240 | DAC—6.0 E-12 $\mu\text{Ci/mL}$ Lung Retention Class Y | | | | |
| Tritium (H-3) | DAC Water—2.0 E-5 $\mu\text{Ci/mL}$ Lung Retention Class Y DAC Elemental—5.0 E-1 $\mu\text{Ci/mL}$ Lung Retention Class Y | Clear | Liquid | inhalation, ingestion, skin | Whole body. |

a. Limits for chemical contaminants from the ACGIH TLV booklet, NIOSH pocket guide to chemical hazard and OSHA 29 CFR 1910 Subpart Z.

b. DAC limits for radiological contaminants from 10 CFR 835.

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|-------|---|---|
| ACGIH | = | American Conference of Government Industrial Hygienists |
| TLV | = | threshold-limit value |
| STEL | = | short-term exposure limit |
| REL | = | recommended exposure limit |
| PEL | = | permissible exposure limit |
| TWA | = | time-weighted average |
| ppm | = | parts per million |
| DAC | = | derived air concentrations. |

Table 8-3. Action levels for the task site.

| Chemical | Most Restrictive Agency Value (ppm) ^a | Action Level (ppm) ^b |
|----------|---|------------------------------------|
| PCE | 25 (ACGIH TLV) | 12 |
| TCE | 50 (ACGIH TLV) | 25 |
| DCE | 200 (OSHA, ACGIH, NIOSH) | 100 |

a. The most restrictive agency value is listed.

b. The identified ALs are normally based on 50% of the most restrictive value. If during routine monitoring the IH equipment indicates chemical levels approaching the ALs, the IH will evaluate and take the appropriate precautions to ensure worker safety.

Table 8-4. Equipment to be used for monitoring.

| Equipment | Agent to be Monitored |
|--|--------------------------------|
| Personal sampling pumps and appropriate media | VOCs |
| Sound level meter and/or noise dosimeter | Noise |
| Heat stress monitor (wet bulb globe temperature) | Heat stress conditions |
| PID or FID (screening) | VOCs |
| Sensidyne Tube | Specific Agents (if necessary) |

PID = photo-ionization detector.
FID = flame ionization detector.

Airborne sampling and monitoring will be conducted using NIOSH methods and in conformance to the INEEL *Safety and Health Manual*. Sampling and/or monitoring frequency and type of sampling and/or monitoring will be determined and incorporated by the IH. The number, frequency, and sampling techniques will depend on the IH's assessment of potential exposures and risk assessment for task-site employees according to the INEEL *Safety and Health Manual*, MCP-153, "Industrial Hygiene Exposure Assessment."

Sampling and/or monitoring data results from direct-reading instruments, and field observations will be recorded per Section 3.1 of this HASP.

8.2.2 Radiological Monitoring

As indicated in Section 8.1, radionuclide contamination and direct radiation exists at the task site. The INEEL Radiological Control Organization (RCO) supplied equipment shall be used to monitor for ionizing radiation, radioactive gases, or particulates in frequencies determined by the INEEL radiological engineer.

Additional surveys, smears, and other sampling will be performed if necessary by the RCT at the task site. Appropriate survey equipment will be used by the RCT to verify boundaries and work zones, survey personnel and equipment before leaving the task site, and verify that waste items are sent to the

appropriate disposal facility. Monitoring will be performed in accordance with the INEEL *Radiation Protection Manual*, MCP-139, "Radiological Surveys," and MCP-425, "Surveys of Materials for Unrestricted Release and Control of Movement of Contaminated Material."

The equipment listed (or equivalent) in Table 8-5 may be used to monitor radiological contamination on the task site.

The RCT shall monitor for radioactivity in accordance with the INEEL *Radiation Protection Manual*, MCP-139, "Radiological Surveys." All health physics equipment will be maintained and calibrated in accordance with MCP-93, "Instrumentation." Dosimetry monitoring shall be as determined by the RWP and performed in accordance with MCP-3, "Tracking Radiation Dosimetry with Dose Cards." Where required, as determined by RADCON analysis per MCP-352, "Conducting Airborne Hazard Analysis," airborne radioactivity sampling will be performed in accordance with MCP-357, "Job-Specific Air Sampling/Monitoring."

8.2.3 Action Levels

To ensure worker safety at the task site, ALs have been set for the chemicals identified in Table 8-3. If concentrations of the identified chemicals reach the noted AL(s), as stated in Table 8-3, the IH will implement the appropriate response action to minimize occupational exposure. The potential response action could include, but is not limited to, one or more of the following:

- Implement engineering controls
- Implement administrative controls
- Upgrade the current level of required PPE.

Additionally, OU 1-07B project tasks have SOPs, SWPs, RWPs, and/or job safety analysis (JSA), as appropriate. These documents must be reviewed and approved prior to the start of work for the particular task.

The appropriate level of PPE shall be worn when working in radiologically controlled areas. Whenever a worker leaves a controlled area, a complete personnel and equipment contamination survey shall be performed. INEEL RCTs will conduct radiological monitoring, as appropriate, to monitor occupational exposure levels as well as ensure the project mitigates any potential for spreading contamination.

Table 8-5. Radiological monitoring equipment.

| Equipment | Monitoring Use |
|----------------------------------|----------------------------------|
| Ludlum 14C or equivalent | Beta-gamma radiation surveys |
| Ludlum 2A or equivalent | Beta-gamma contamination surveys |
| Ne-Electra, ASP-1, or equivalent | Alpha contamination surveys |

8.2.4 RADCON Engineer/Industrial Hygienist Exposure Assessments

To ensure worker safety at the task site, PELs or ALs are indicated in Table 8-2. If levels of these contaminants reach the AL(s) noted, corresponding actions shall be taken at the task site.

8.3 Physical Hazards Evaluation, Control, and Monitoring

The physical hazards present at the task site, and the methods that will be used to monitor and control them, are described in this section.

8.3.1 Temperature Extremes

8.3.1.1 Heat Stress. Employees may be required to work outdoors during summer months and/or wear protective clothing that prevents the body from cooling. High or extreme internal body temperatures can result in heat fatigue, heat exhaustion, or heat stroke that can lead to symptoms all the way from physical discomfort up to and including death. Employees must inform the CE or HSO when experiencing any signs and/or symptoms of heat stress, or observe a fellow employee (“buddy”) experiencing them. INEEL *Safety and Health Manual*, MCP-2704, “Heat and Cold Stress,” discusses heat stress hazards.

Monitoring for heat stress conditions shall be performed according to the INEEL *Safety and Health Manual*, MCP-2704, “Heat and Cold Stress.” Depending on the ambient weather conditions, work conditions, type of PPE worn, and the physical response of work operations employees, the IH/RCT shall inform the JSS and CE of necessary adjustments to the work/rest cycle. A supply of cool drinking water will be provided at the task site and consumed only in the designated eating area. The IH/RCT or HSO may periodically interview workers to ensure that the controls are effective and that excessive heat exposure is not occurring. A cool down area will be designated for workers to rest periodically. Workers will be encouraged to monitor their body signs and to take breaks if symptoms of heat stress occur. The signs of heat stress are:

Heat Exhaustion

- Clammy skin
- Dizziness or nausea
- Fatigue
- Profuse sweating
- Skin color change
- Vision problems.

Heat Stroke

- Employee stops sweating
- Signs/symptoms of confusion
- Slurred speech
- Any evidence of a change in consciousness
- Skin is hot and reddish in color.

Note: *Heat exhaustion and heat stroke are extremely serious conditions that can result in death and should be treated as such. Transport employees immediately to the nearest medical facility.*

Individuals showing any of the symptoms listed above will stop work, move to a shaded area to rest, be provided cool drinking water, and be monitored by a Medic/cardiopulmonary resuscitation

(CPR)/First-Aid certified employee. If employees exhibiting signs and/or symptoms of heat stress do not show signs of immediate recovery when removed to the rest area, they will be transported to the nearest medical facility for medical attention.

8.3.1.2 Cold Stress. Exposure to low temperatures may be a factor when working during the winter months or at any time of year if the conditions are right. Relatively cool ambient temperatures, and wet or windy conditions increase the potential for cold injury to employees. The *INEEL Safety and Health Manual*, MCP-2704, "Heat and Cold Stress" discusses the hazards of cold stress. Cold stress conditions will be monitored according to the *INEEL Safety and Health Manual*, MCP-2704.

8.3.2 Noise

Employees working at the task site may be exposed to noise levels that exceed 83 decibel A-weighted (dBA) during routine activities. Examples of these activities are drilling, welding, grinding, and the use of air compressors. Noise measurements will be performed by the IH per the *INEEL Safety and Health Manual*, MCP-2719, "Hearing Conservation Program," to determine if employees assigned to the jobs identified above are exposed to noise above the allowable 10-hour time-weighted average of 83 dBA. Employees whose noise exposure meet or exceed the allowable level will be enrolled in the INEEL or subcontractor OMP Hearing Conservation Program. Employees working on jobs that have noise exposures greater than 83 dBA will be required to wear hearing protection until noise levels have been evaluated, and will continue to wear the hearing protection specified by the IH until directed otherwise.

Note: *The construction zone shall be roped off to an area sufficient to maintain a noise level below 83 dBA at all sides of the site. The TAN IH shall monitor for noise at the start of construction to establish construction zones.*

8.3.3 Fire and Explosion Hazards

Currently no flammable or combustible liquids have been identified at the task site. If flammable and/or combustible liquids are used in the future, they will be handled per *INEEL Safety and Health Manual* MCP-584, "Flammable and Combustible Liquid." Explosion and fire hazards are associated with drilling projects. Power equipment (e.g., drill rigs and air compressors) will be refueled only after the equipment has completely cooled and all sources of spark and flame will be maintained for at least 15 m (50 ft) from any fuel source. Fire extinguishers will be located at the task site during all drilling operations. No other flammable materials will be present near drilling, welding, and cutting operations. Flammable and combustible liquids will be handled per the *INEEL Safety and Health Manual*, MCP-584 as indicated above. In case of a fire or explosion at the site, which does, or may, involve hazardous waste, implement the contingency plan for TAN contained in the Emergency Preparedness Manual.

8.3.4 Confined Spaces

Work in confined spaces may subject workers to risks involving engulfment, entrapment, oxygen deficiency, and toxic or explosive atmospheres. There are a number of confined spaces identified at the task site. Entrances to confined spaces will be posted appropriately per the *INEEL Safety and Health Manual*, MCP-2749, "Confined Spaces."

In accordance with the *INEEL Safety and Health Manual* MCP-2749, a confined space entry permit is required before anyone enters a permit required confined space. The INEEL IH per MCP-2749 shall approve all nonpermit-confined spaces. A nonpermit-confined space that personnel will enter at the

task site is the frac tank that is used for drilling and pumping tests. It is sometimes necessary to shovel drill cuttings out the hatch of the tank.

A copy of the current "Confined Space Identification and Evaluation Form" for each confined space to be entered will be provided by the HSO and project IH. Fire department notification is required prior to authorizing entry into a permit required confined space. A trained attendant will be outside the permit required confined space to assist entrants, monitor the well being of entrants, and notify the rescue team, if necessary. Use a SWP, JSA, or other work documentation which may include, but is not limited to, a confined space entry permit for entry into a nonpermit confined space. Personnel required to enter the space will be briefed on the hazards involved, the meaning of warning signals of any monitoring equipment that is worn or taken into the space, any special tools or equipment to be used, and actions to take in case of an emergency. The emergency rescue plan is outlined below.

8.3.4.1 Confined Space Emergency Rescue Plan. The job entry supervisor (JES) and CE will verify all confined space training before work begins. The entrant(s)/attendant(s) and JES must have course codes that meet the requirements listed in Section 4, "Personnel Training," Table 4-1. An emergency rescue plan must be specified; the rescue plan must be specific to the space(s) entered and the hazards involved. It must include the number and type of rescue equipment (for example, harnesses, lanyards, tripod/winch) that will be used by entrants and/or maintained at the site, where the equipment will be staged or set up to facilitate a rescue, and must include specific assignments for work site personnel who will participate in a rescue.

Note: *Personnel using rescue equipment must be trained to a "competent" level as defined in INEEL MCP-2749, "Confined Spaces."*

8.3.5 Safety Hazards

8.3.5.1 Handling Heavy Objects. Operators may be exposed to injury by lifting or manipulating equipment during activated carbon changeout, bag filter maintenance, or ion exchange resin replacement. Moving waste drums by hand or forklift may also expose personnel to possible injury. Sampling, well probing, and logging personnel may be exposed to injury by lifting heavy objects such as the pumps, probes, piping, shipping coolers, and water carboys. All employees are therefore cautioned against lifting objects that are too heavy and will be properly trained to INEEL *Safety and Health Manual*, MCP-2716. People involved in manual material handling will wear hand protection (i.e., leather gloves) as directed by the CE.

8.3.5.2 Drilling Specific. Drilling personnel shall conduct daily walk-around inspections of all drilling equipment, hoisting and rigging equipment, and the entire task site. The task site must be free of slick spots, tripping hazards, and slippery areas. The drill site and lay down areas shall also be kept clean and meet the requirements of OSHA 1926. Ropes and signs of construction areas shall also be inspected daily. The subcontractor shall also supply and inspect potable water and eye wash stations that are required to be posted at the entrance to the contamination reduction/construction zone.

Note: *Fire extinguishers (20 lb BC rated or equivalent), first-aid kits, spill kits, telephone, and/or radio shall be available at the drill site at all times. Emergency phone lists shall be available at the site for drilling personnel in case of emergencies.*

During drilling operations, handling and maneuvering of drill rods, casing, auger flights, and various other pieces of equipment may result in personal injury. Manual material handling will be minimized through task design and the use of mechanical and hydraulic lifts whenever possible. Drilling

personnel shall be experienced with training in proper lifting. The JSS, CE, and HSO shall review the basis for safe lifting in plan of the day (POD) meetings. Specific associated hazards with drilling are listed in Table 8-1. A JSA shall be submitted to the contractor for each drilling task for approval prior to the drilling activity being performed. The JSS, CE, and HSO shall all approve JSAs.

Drill cuttings from each well will be exhausted through an air diverter housing at the well head to a cyclone separator and containerized as appropriate. Dust will be suppressed as much as practicable. The subcontractor shall inject controlled amounts of water downhole for dust suppression during drilling operations as directed by the CE. Water generated during drilling shall be diverted to holding tanks with spill control.

PPE for drilling activities at a minimum shall be “Level D.” Coveralls, hard hat, leather gloves, and toe/shank boots, eye protection (American National Standards Institute [ANSI] approved safety glasses) shall be worn for all drilling activities. Hearing protection shall be worn in posted areas. PPE may be upgraded at anytime required by the JSS, CE, HSO, IH, or RCT depending on site conditions.

8.3.5.3 Hoisting and Rigging. All hoisting and rigging activities associated with the task site will follow the requirements of the DOE *Handbook* “Hoisting and Rigging” (DOE 1995). Activities that will involve hoisting and rigging may include facility construction, well drilling, and raising or lowering well pump piping. The requirements for these types of activities must be clearly defined and have proper preplanning. Extreme care, attention to detail, teamwork on the part of trained operators/riggers, and the use of reliable, properly designed, inspected, and maintained equipment will be ensured. Hoisting and rigging equipment shall be inspected daily at a minimum.

8.3.5.4 Sampling Equipment. All power tools will be properly maintained and used by qualified individuals in a safe manner and in accordance with the manufacturer's recommendations. The INEEL *Safety and Health Manual* will be followed for all work performed with power tools. No gas or diesel powered tool will be refueled while running.

8.3.5.5 Moving Machinery. Task-site employees working around or near moving machinery shall comply with the appropriate INEEL *Safety and Health Manual* MCPs and the DOE *Handbook* “Hoisting and Rigging” (DOE 1995).

8.3.5.6 Electrical Hazards, Energized Systems. Electrical equipment and tools as well as overhead and underground lines may pose shock or electrocution hazards to employees. Safety-related work practices shall be employed to prevent electric shock or other injuries resulting from direct or indirect electrical contact. If work on energized systems is necessary, these practices will comply with the requirements in the INEEL *Safety and Health Manual*, MCP-2731, “Electrical Safety,” INEEL *Operations Manual*, MCP-1059, “Lockouts and Tagouts” and facility supplemental MCPs. In addition all electrical work will be reviewed and completed under the appropriate work controls (i.e., HASPs, SWPs, work orders).

The requirements in the INEEL *Safety and Health Manual*, MCP-2735, “Hand and Portable Power Tools,” will be followed for all work using portable electrical tools or equipment.

Overhead power lines, downed electrical wires, and buried cables pose shock or electrocution hazards. Operating personnel, before raising masts on drill rigs or using cranes, will identify overhead electrical hazards. Minimum distances for working near overhead power lines, found in INEEL *Safety and Health Manual*, MCP-3000, “Hoisting/Rigging,” and Table 9-3 of the DOE *Handbook*, “Hoisting and Rigging” (DOE 1995) will be followed. The requirements in the INEEL *Safety and Health Manual*, MCP-2731 will be followed for all work performed near overhead lines.

Before beginning drilling or excavating operations, underground utility clearances will be obtained by contacting Telecommunications (526-1688 or 526-2512). Subsurface investigation clearance will be obtained in accordance with INEEL *Facilities and Maintenance Manual*, MCP-151, "Subsurface Investigations." The requirements for advanced 48-hour notice will be met.

8.3.5.7 Heavy Equipment. The hazards associated with the operation of heavy equipment include injury to personnel, equipment damage, and/or property damage. All heavy equipment will be used in the manner in which it was attended. Drivers will operate all equipment in accordance with manufacturer's instructions and within the safe operating parameters as defined by the manufacturer. Only required personnel will be allowed in the vicinity of operating heavy equipment and should maintain visual communication with the operator. Work site personnel shall comply with INEEL *Safety and Health Manual*, MCP 2745 "Heavy Industrial Vehicles," MCP-2743, "Motor Vehicle Safety," and MCP-2744 "Powered Industrial Trucks."

8.3.5.8 Personal Protective Equipment. Wearing PPE will reduce a worker's ability to move freely, see clearly, and hear directions and noise that might indicate a hazard. Also, PPE can increase the risk of heat stress. Work activities at the work site will be modified as necessary to ensure that personnel are able to work safely in the required PPE. Work-site personnel shall comply with INEEL *Safety and Health Manual*, MCP-2716, "Personal Protective Equipment," and *Radiation Protection Manual*, MCP-432, "Radiological Personal Protective Equipment."

8.3.5.9 Elevated Work Areas. When performing certain task-site activities, employees may be required to work on elevated equipment or at heights. When such work is performed, employees shall comply with the INEEL *Safety and Health Manual* MCP-2710 "Fall Protection" and the following applicable MCPs: MCP-2709, "Aerial Lifts and Elevating Work Platforms," MCP-2711, "Ladders," MCP-2712, "Scaffolding," and MCP-2713, "Walking and Working Surfaces."

8.3.5.10 Excavation, Trenching, and Shoring. Excavation work can pose a number of hazards including, but not limited to, cave-ins, engulfment, sudden subsidence of soil, breach of underground containers, and water accumulation. Work involving excavations include drilling and industrial civil work (i.e., clear and grub footings and foundations). All excavations at the task site shall meet the requirements outlined in the INEEL *Safety and Health Manual*, MCP-2733, "Excavation and Surface Penetrations."

All excavations deeper than 1.2 m (4 ft) shall be sloped 1 to 1 1/2. Soil at TAN shall be classified as Type "C" soil. All excavations shall comply with OSHA 1926. Excavated areas shall be posted and isolated (roped, barricaded or fenced off) to prevent injury.

8.3.5.11 Decontamination. Chemical and radiological decontamination shall be performed according to the appropriate INEEL MCPs and the decontamination plan for OU 1-07B^a to remove contaminants from tools, equipment, and task-site personnel preventing the spread of contamination. Special precautions shall be developed and followed when high-pressure hot water and steam is used in the decontamination process that will prevent potential contaminated material from rebounding into the face or onto the body of personnel. Decontamination MCPs must be followed and the appropriate PPE worn during decontamination activities. Where personnel are exposed to radiological contamination, the RCT will comply with the INEEL *Radiation Protection Manual*, MCP-148, "Personnel Decontamination

a. *Draft Decontamination Plan for Operable Unit 1-07B*, U. S. Department of Energy Idaho Operations Office, INEEL/EXT-97-01287, 1998.

Procedure.” Where personnel are exposed to hazardous chemical contamination, the IH will comply with INEEL *Safety and Health Manual-14B*, MCPs and general IH practices; for sampling activities the SAP or Abbreviated Sampling and Analysis Plan will be followed.

8.3.6 Inclement Weather Conditions

When inclement or adverse weather conditions develop which may pose a threat to persons or property at the task site (i.e., sustained strong winds [25 mph or greater], electrical storms, heavy precipitation, or extreme heat or cold), the conditions will be evaluated and a decision made by the CE and JSS, with input from the HSO, IH, safety engineer, RCT, and other personnel, as appropriate, to stop work, employ compensatory measures, or to proceed. The CE and JSS shall comply with INEEL MCPs and site work control documents that specify limits for inclement weather.

8.3.7 Liquid Nitrogen Safety

Liquid nitrogen will be used in OU 1-07B project laboratories. The nitrogen will be maintained within a closed pipe system linked to an ENTECH 7000 Automatic Air Sampler. The sampler utilizes a cryotrap for collecting air media samples. These samples will be analyzed through a gas chromatograph mass spectrometer.

There are four hazards associated with the use of liquid nitrogen:

- High pressure gas cylinders
- Contact with materials
- Skin contact
- Inadequate ventilation.

Personnel should avoid wearing anything capable of trapping or holding spilled liquid nitrogen close to their flesh. Individuals handling cryogenic liquids and all individuals in the immediate vicinity shall comply with the following safety precautions:

- Personnel shall wear an impervious apron or coat, cuffless trousers, and high-topped shoes
- Personnel shall wear safety glasses with side shields, and a face shield
- Personnel shall remove all watches, rings, bracelets, or other visible jewelry
- When gloves are used to handle containers of cold metal parts, they should be for use with cryogenics, impervious, and sufficiently large to be easily tossed off the hand in case of a spill.

The transfer lines are constructed to avoid trapping liquid nitrogen in the line. Safety relief valves are installed on the liquid nitrogen containers.

Note: *Reference Cold Stress Section 8.3.1.2 of this HASP and the INEEL Safety and Health Manual, MCP-2704 for cold stress hazards.*

8.4 Other Task-site Hazards

Task-site employees should look for potential hazards and immediately inform the CE or HSO of the hazards so that action can be taken to correct the condition.

The CE and JSS will conduct daily inspections of the task site to ensure that barriers and signs are being maintained, unsafe conditions are corrected, and debris is not accumulating on the site. These inspections will be noted in the CE logbook. Health and safety professionals present at the task site may, at any time, recommend changes in work habits to the JSS or CE.

Employees working at the task site are responsible to use safe-work techniques, report unsafe working conditions, and exercise good personal hygiene and housekeeping habits throughout the course of their job.

9. PERSONAL PROTECTIVE EQUIPMENT

Selection of the proper PPE to protect task-site employees shall be based on toxicity, potential route of entry, physical form of contaminant, and anticipated levels of known or suspected HAZMATs and agents (including radiological hazards) expected to be found at the task site, following recommendations contained in NIOSH (1985), and on the Hazard Evaluation (Section 8) of this HASP.

Protection from radiological hazards, as well as protection against chemical hazards must be considered and anti-contamination (anti-C) PPE must be integrated with PPE requirements for chemical protection. Anti-C requirements are dictated by RWP in conformance with INEEL *Radiation Protection Manual*, MCP-432, "Personal Protective Equipment." The potential for exposure and physical, toxicological, and other properties of the chemical agents at the task site dictate PPE for chemical protection.

Note: *PPE in contact with groundwater shall be disposed as F001 listed waste.*

The appropriate anti-C clothing for expected levels of radiological contamination must be integrated with the chemical-protective clothing when a radiological/chemical hazard exists at the task site.

9.1 Level D Personal Protective Equipment

Level D PPE affords little protection against chemical hazards. If the task-site exposures to hazardous chemicals are below established allowable limits and no danger exists from chemical absorption through the skin, employees may wear Level D PPE. Level D PPE is a basic, standard work uniform that consists of:

- Coveralls or street clothes (as determined by the HSO, IH, RCT)
- Hard hat (as required by permits and type of work being performed)
- Eye protection (see INEEL *Safety and Health Manual*, MCP-2716, "Personal Protective Equipment")
- Safety footwear (steel or protective toe and shank, as determined by JSAs and work permits)
- Any chemical or radiological protective clothing prescribed in task-specific RWP or SWP.

Note: *Level D PPE may be modified at any time by the HSO, IH, or RCT. These changes will be documented.*

9.2 Level C Personal Protective Equipment

Level C PPE shall be worn when the task-site chemical and/or radiological contaminants have been well-characterized indicating that employees are protected from airborne exposures by wearing the appropriate air-purifying respirators (APRs), that there is no potential employee exposure via skin absorption, and that there are no conditions that pose immediate danger to life or health. Level C PPE shall consist of:

- Full-face APR with specific cartridge type (IH and RCT to specify)
- Chemical-resistant coveralls (IH or RCT to specify material)
- Any other chemical or radiological PPE prescribed in task-specific RWP or SWP
- Safety footwear (steel or protective toe and shank boots as determined by the safety engineer)
- Chemical-resistant outer shoe/boot cover (IH or RCT to specify material)
- Inner gloves (IH or RCT to specify material)
- Outer gloves (IH or RCT to specify material)
- Hard hat (as required by the safety engineer).

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| <p>Note: <i>Level C PPE may be modified at any time by the HSO, IH, or RCT. These changes will be documented.</i></p> |
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The user must inspect PPE before donning and prior to entering the exclusion zone. Items found to be defective will not be used or doffed. If found damaged after donning, the PPE will be doffed and properly disposed.

All employees required to wear respirators shall complete training and be fit-tested before being assigned a respirator per the training and documentation requirements in Section 4 of this HASP. Requirements for respirator use, emergency use, storage, cleaning, and maintenance, as stated in the INEEL *Safety and Health Manual*, MCP-2726, "Respiratory Protection" shall be followed.

PPE requirements shall be specified on approved JSAs, SWPs, and RWPs, as applicable, for each work task performed. Due to site changing conditions, PPE requirements may change in which case new JSA permits may be required.

10. DECONTAMINATION PROCEDURES

Decontamination will be performed in accordance with the decontamination plan for OU 1-07B found in the RA work plan (DOE-ID 1998b). All personnel, clothing, equipment, and samples leaving an exclusion zone (contaminated or potentially contaminated area) shall be decontaminated to remove any harmful substances that may have adhered to them. All PPE and decontamination materials contacting groundwater shall be considered F001 listed hazardous waste and disposed in accordance with Standard Operating Procedure (SOP)-011. Some equipment may be disposed of rather than decontaminated. This section provides guidelines for decontamination procedures to be implemented at the task sites. Details for the project/site will be addressed in the decontamination plan for OU1-07B and conveyed during the project-specific health and safety briefing held prior to commencing field activities.

As applicable, all personnel will be surveyed for radioactive contamination prior to exiting the radiologically controlled work area. Readings 100 counts above background will require the person to immediately notify the INEEL RCT who will be responsible for all radiological decontamination efforts required on the task site.

10.1 Single-station Decontamination (PPE Level C)

When Level C PPE is worn, the decontamination station shall be located in the contamination reduction corridor located in the CRZ. The steps listed below must be performed when exiting the exclusion zone:

At Point of Entry/Exit from Exclusion to CRZ:

1. Place tools and equipment into appropriate container(s)
2. Remove tape
3. Remove and dispose of boot covers and outer gloves
4. Remove and drop respirator.

At Point of Entry/Exit from CRZ to Support Zone:

5. Remove coveralls
6. Field wash/shower.

In Locker Room or Change Area:

7. Put on personal clothing.

For Level D PPE, decontamination will consist of, at a minimum, hand washing with soap and water. Hand and foot frisks and full body radiological monitoring will be addressed in JSAs and RWP as applicable. Additional requirements for individual facility tasks are identified in the GWTF SOP.

10.2 Decontamination of Personnel and Equipment

Radiological decontamination of personnel shall be done under the direct supervision of INEEL RADCON (radiological engineer or RCT) in accordance with the INEEL *Radiation Protection Manual* Chapter 5 and MCP-148, "Personnel Decontamination Procedure." Chemical decontamination of personnel shall be done under the direct supervision of INEEL IH personnel. Personnel and personal property decontamination procedures that may be used include tape, vacuuming (vacuum must be equipped with a high-efficiency particulate air filter), washing with soap and water, or other approved techniques. All radiological decontamination operations for equipment and areas shall be performed in accordance with Chapter 4 of the INEEL *Radiation Protection Manual*.

10.2.1 Decontamination in Medical Emergencies

If a person is injured or becomes ill, First-Aid personnel on the task site will evaluate the situation. Emergency care will be initiated and emergency preparedness procedures for the facility at which the work is being performed will be activated. **Medical care for serious injury or illness will not be delayed for decontamination.** In such cases, gross contamination may be removed by removing the injured person's outer protective gear (if possible). Additional decontamination may be performed at the medical facility. The IH or RCT (depending on the type of contamination) should accompany the employee to the medical facility to provide information and decontamination assistance to medical personnel. The INEEL *Radiation Protection Manual* Chapter 5 and MCP-148, "Personnel Decontamination Procedure," contain information on proper handling of radiologically contaminated wounds.

10.2.2 Equipment Decontamination and Disposal of Contaminated Materials

Decontamination for equipment on OU 1-07B project shall comply with the decontamination plan for OU 1-07B (see footnote a). All hazardous or mixed waste generated in the decontamination process must be handled and disposed in accordance with the INEEL environmental MCPs, ER waste certification plans, and Chapter 4 of the INEEL *Radiation Protection Manual*. Contaminated equipment that can be reused may be placed in appropriate, labeled containers that can be decontaminated before being removed from the task site. Reference to INEEL *Environmental Manual* Technical Procedures (TPR)-51, "Decontamination of Heavy Equipment in the Field," and TPR-52, "Decontamination of Sampling Equipment in the Field" should be used as appropriate.

All equipment and tools used in a potentially radiologically contaminated area will be frisked for contamination prior to removal from the site/project. Equipment that is in direct contact with potentially contaminated soil will undergo decontamination to meet requirements of the INEEL *Radiation Protection Manual* prior to release. If the equipment is unable to meet the release requirements of the INEEL *Radiation Protection Manual*, the equipment shall be designated for use as radiologically controlled equipment.

All materials and equipment used for decontamination must be disposed properly. Clothing, tools, buckets, brushes, and all cleaning solutions and spoils must be secured in drums or other containers, and labeled correctly for transportation and disposal.

10.2.3 Site Sanitation and Waste Minimization

Task-site personnel will use toilet facilities located at Building 607 or portable urinals located at the OU 1-07B project site. Potable water and soap will also be available at the task site for personnel to

wash their hands and face upon exiting the work area in Building 607. It is important to note that any required radiological contamination surveys must be performed ***before*** washing face and hands to prevent accidental spread of contamination.

Waste materials will not be allowed to accumulate at the task site. Appropriate containers for contaminated and noncontaminated waste will be maintained at step-off areas, in the support zone, and at other appropriate locations at the task site. All waste will be surveyed by the RCT before removal from the task site. All waste generated shall be managed in accordance with the *Waste Management Plan for Test Area North Final Groundwater Remediation—Operable Unit (OU) 1-07B* (INEEL 1998). Personnel should make every attempt to minimize waste through judicious use of consumable materials. All task-site personnel are expected to make good housekeeping a priority at the task site.

11. EMERGENCY RESPONSE PLAN FOR OU 1-07B SITE

This section defines the responsibilities of project and the INEEL ERO by providing guidance for responding to abnormal events during project activity.

This emergency response plan addresses OSHA “emergency response” as defined by 29 CFR 1910.120/1926.65, *Hazardous Waste Operations and Emergency Response* and DOE “emergencies” as defined by DOE Order 151.1, Change 2, *DOE Comprehensive Emergency Management System* and DOE Order 232.1, *Occurrence Reporting and Processing of Operations Information*. This response plan is implemented in concert with the INEEL emergency plan/RCRA contingency plan.

The INEEL emergency plan may be activated in response to events occurring at the TAN or at the Site, or at the discretion of the emergency coordinator. Once the INEEL plan is activated project personnel will follow the direction and guidance communicated by the EC.

Note: The OSHA term “emergency” is not defined the same as the DOE term “emergency.” For simplicity, the term “emergency” is used in this section of the HASP to refer to events covered by either the OSHA or the DOE definition.

Emergency response plans must be developed and put into place before any project activity begins. Preplanning makes it possible for the project to anticipate and appropriately respond to abnormal events that can affect project activity. Preplanning also ensures that the project emergency response program is integrated with that of the INEEL or the TAN. Emergency response program elements that must be completed before starting the project include:

- Designating emergency warning signals and evacuation routes
- Implementing personnel accountability procedures
- Identifying emergency medical services and the personnel charged with performing those services
- Establishing effective site communications
- Establishing requirements for emergency equipment and supplies
- Establishing the preferred means for notifying the INEEL ERO of abnormal events.

All emergencies will be reported through the TAN shift supervisor or the Warning Communications Center (WCC) to the TAN ERO for classification in accordance with Section 4 of the INEEL Emergency Plan/RCRA Contingency Plan (PLN-114). If the TAN ERO is activated, site emergency response will follow the INEEL Emergency Plan/RCRA Contingency Plan, TAN Addendum.

On scene response to and mitigation of site emergencies could require the expertise of both site personnel and INEEL fire department personnel. Emergencies that could occur include:

- Accidents resulting in injury
- Accidents resulting in radiological exposure

- Fires
- Explosions
- Spills of hazardous/radiological materials
- Tornadoes, earthquakes, and other adverse natural phenomena
- Vehicle or transportation emergencies
- Safeguard and security emergencies
- Emergencies at nearby facilities that could prompt evacuation or take-cover actions at the task site.

11.1 Types of Emergency Events

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| <p>Note: <i>This HASP addresses three types of emergency events as described in the following sections.</i></p> |
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11.1.1 Events Requiring Emergency Notifications

Certain events require courtesy notifications but do not require a response from the INEEL ERO. In these cases the project CE or designee will immediately notify the TAN shift supervisor, the WCC, project and department personnel, DOE, and other appropriate parties as listed in Section 11.8 of this HASP. The CE's notification should describe the event (see Section 11.5.3) and state that no emergency response support is required. Examples of these types of events include, but are not limited to, the following:

- Personal injury at the site requiring medical evaluation or treatment but does not require an ambulance response
- Personnel contamination or suspected uptake of radiological or hazardous substance
- Equipment or vehicle accident that results in damage to the vehicle and/or property ONLY
- Failure of an engineering control or isolation that results in only localized contamination within the established radiologically controlled area
- Unexpected high radiation dose to personnel (greater than ALARA goal)
- Small fire that is controlled with a hand-held fire extinguisher
- Any spill as defined by INEEL MCP-439, "*Facility Notification and Release Reporting*"
- Any other deemed potentially reportable.

11.1.2 Events Requiring Local Project Evacuation and/or INEEL ERO Response

Some events that could occur at the project or at the TAN may require support from the INEEL ERO or may require a local area evacuation of the project. In these cases the project CE, or designee, who is the appointed project area warden, will immediately notify the TAN shift supervisor, the WCC, project and department personnel, DOE, and other appropriate parties as listed in Section 11.8. The CE's notification will describe the event (see Section 11.5.3) and will request emergency response resources as appropriate. After being informed of the event, the EC may elect to activate the facility command post. Once the Command Post is declared operational all emergency response activities will be coordinated through the EC. The specific actions to be taken in response to emergency alarms are described in Section 11.5. Examples of these types of events include but are not limited to those listed below:

- Fire that is burning beyond an incipient stage and cannot be extinguished with hand-held extinguishers
- Large spill at the project that cannot be immediately contained or controlled
- Small episodic airborne release beyond the radiologically controlled area
- Serious injury to a worker or workers.

11.1.3 Events Requiring Total Facility and Project Evacuation

In the event that a facility evacuation requires the project to evacuate, the CE or designee shall be notified to evacuate all project personnel. The EC is responsible for ordering a total area evacuation protective action.

Note: *When an evacuation is called for by the EC, the CE is the designated project area warden who will ensure that the ERO personnel accountability leader (PAL) has been notified that all project employees have been evacuated and accounted for.*

11.2 Emergency Facilities and Equipment

Emergency response equipment that will be maintained at the site includes the items described in Table 11-1. Addendum (insert appropriate facility addendum number) to the INEEL Emergency Plan lists emergency equipment available at the TAN. In addition, Section 11 of the INEEL Emergency Plan lists all INEEL emergency equipment available. The INEEL fire department maintains an emergency HAZMAT response van that can be used to respond to an event or emergency at the project. Fire department personnel are also trained to provide immediate HAZMAT spills and medical services. At least two persons with current Medic/First-Aid training will be present at the project to render first-aid as required. Project RADCON and IH personnel will assist with all emergency decontamination efforts. If an emergency at this site involves a temporary accumulation area (TAA), refer to the INEEL Emergency Plan/RCRA Contingency Plan, Addendum, Appendix L for emergency equipment inventory information.

Table 11-1. Task-site emergency response equipment.

| Equipment Name | Location at Task Site | Responsible Person | Frequency of Inspection |
|---|---|--------------------|---|
| Fire extinguishers, 40 lb BC rated, or equivalent | GWTF ISB Air Stripper ISB Nutrient Injection ISB Field Lab Trailer | JSS, CE | Start of job then monthly |
| First-Aid kit ^a | GWTF ISB Nutrient Injection ISB Field Lab Trailer | JSS, CE | Monthly and after each use |
| Eye wash station ^b | GWTF ISB Nutrient Injection ISB Field Lab Trailer | JSS, CE | Start of job, use test weekly at the GWTF (SOP-016) |
| Cell phone | GWTF | CE | Daily |
| Hand held radio | GWTF personnel | CE | Daily |
| Hazardous materials spill kit | GWTF CWSU | JSS, CE | Start of job then monthly |
| Radiological spill kit | GWTF | JSS, CE | Start of job then monthly |
| Extra PPE | GWTF | JSS | Daily |

a. The first-aid kit will conform to the requirements in the INEEL *Safety and Health Manual* and will contain a Microshield CPR mask and examination gloves. Kit items will be kept in weatherproof containers with individually sealed packages for each type of item.

b. Must meet ANSI requirements for flow rate and capacity (ANSI-3581.1-1990). Eyewash required onsite during sample handling, equipment decontamination activities, and heavy equipment operation.

Fire extinguishers and first-aid supplies are minimum requirements for all sites including those in the field. Other items must be considered and should be present at that site or readily available if needed.

11.3 Emergency Communications

In the event of an emergency, the capability to summon INEEL emergency response resources, to immediately notify site personnel, and to inform others of site emergencies is required. Communications equipment at the task site will be a combination of pagers, radio (call sign "KID 240" or talk group "INEL OSC"), telephones (mobile, cellular, or facility).

The following, as necessary, will be used for emergency situations:

- **TO GET HELP FROM THE INEEL FIRE DEPARTMENT, SITE PERSONNEL WILL USE RADIO FREQUENCY for TAN OR WILL CALL 777, WHICH IS THE INEEL SITE EMERGENCY TELEPHONE NUMBER, OR 526-1515, WHICH IS THE WCC.** INEEL facility telephones are linked to 777. The 777 number cannot be reached on mobile or cellular telephones. If mobile or cellular telephones are used, calls must go to the INEEL WCC at 526-1515.

- To notify site personnel to stop work and evacuate the site by using voice, hand signals, alternating or steady siren, or three blasts from a hand held air horn or vehicle horn.
- To notify site personnel to stop work and take cover a steady siren or blast from a hand held air horn or vehicle horn will be sounded. The nearest shelter or building for the site is the TAN GWTF structure or Building 607.
- For sites that are located in the field, (i.e., inside the INEEL boundary but outside of any specific facility boundaries), the point of contact will be the CE. The point of contact maintains communications with fieldworkers at all times and can notify fieldworkers of facility or site-wide emergencies what could impact the task site.
- The TAN shift supervisor will be notified.
- The TAN shift supervisor or the WCC will notify the TAN ERO.

Site personnel will provide the following information, as available, when communicating emergency information to the INEEL site emergency telephone number, the WCC, or the point of contact:

- The caller's name, telephone number, pager number
- Exact location of the emergency
- Nature of the emergency including time of occurrence, current site conditions, and special hazards in the area
- Injuries, if any, including numbers of injured, types of injuries, conditions of injured
- Additional information as requested.

11.4 Emergency Response Roles and Responsibilities

11.4.1 INEEL and TAN Emergency Response Organizations

The INEEL ERO structure is based on the Incident Command System (ICS). The ICS is an emergency management system designed for use from the time an incident occurs and is responded to until it is terminated. The system consists of procedures for controlling personnel, facilities, equipment, and communications. It allows for activating emergency response resources in a grade approach depending on the nature and seriousness of the event. At the TAN the ICS is implemented as a chain of command operating on three basic levels. They consist of the on-scene commander (OSC), the TAN command post, and the INEEL emergency operations center.

11.4.1.1 On-scene Commander. The OSC (per PLN-114, Emergency Control Organization) has the tactical and command responsibility for the control of an emergency situation at the scene, a fire, HAZMAT response, and as a special rescue response. The senior fire department officer responding for the INEEL fire department fills this position. If the event is primarily a security incident, the senior responding protective forces officer will assume the duties of the OSC. In some instances the incident response team (IRT) leader may function as the OSC until relieved by a higher tiered authority. The IRT leader reports to the OSC who reports to the EC. The IRT acts at the First Responder Awareness level by

providing initial control personal protective measures and incident assessment and mitigation as directed by the IRT leader.

The project CE and HSO, as well as designated replacements, will be trained at the First Responder Awareness level and shall take immediate actions to:

- Understand the potential outcomes associated with an emergency when hazardous substances are present
- An understanding of what hazardous substances are and the risks associated with them in an incident
- The ability to recognize the presence of hazardous substances in an emergency
- The ability to identify the hazardous substances if possible
- The roles of a first responder at the awareness level
- The ability to realize and understand the need for additional resources.

11.4.1.2 TAN Command Post. The TAN command post is the second tier of the emergency response line organization and is headed by the EC. The EC is responsible for all emergency response actions within the entire facility, including advising the OSC. The command post is activated for actual or potential emergencies or at the direction of the EC. If the command post is activated in response to an event at the project, then the project will send a representative to the command post to advise the EC.

11.4.1.3 Emergency Operations Center. The emergency operations center is the upper tier of the ERO and is headed by the INEEL emergency director. The emergency director is responsible for all emergency response actions at the INEEL, including advising the EC. Project personnel do not normally provide direct support to the emergency operations center.

11.4.2 Project Personnel Involved in Emergencies

11.4.2.1 Construction Engineer. The CE or the HSO is responsible, as the designated project first responder at the awareness level, for initiating all request for emergency services (fire, medical, etc.) and for notifying the facility shift supervisor of abnormal or potential abnormal events occurring on the project. The CE, or designee, serves as the project area warden. The CE in this capacity will report the accountability for all employees when an emergency evacuation is called to the PAL. Additionally the CE will control the scene at the First Responder Awareness level until a higher tiered ICS authority arrives at the scene to take control as the OSC (see Section 11.4.1.1). While maintaining control of the scene, from a protected, controlled distance, the CE shall maintain communication with the facility shift supervisor or the EC when the system is in place.

11.4.2.2 Project Personnel. Every person at the project has a role to play during an event or INEEL emergency. Each employee must be constantly aware of potential problems or unexpectedly hazardous situations by immediately reporting these situations to the CE or HSO. All employees are expected to watch out for their fellow workers, to report their concerns to the CE, and to respond to emergency events as provided for in the HASP. The project emergency coordinators are provided in Table 11-2.

Table 11-2. Project emergency coordinators.

| Name/Function | Duty Phone | Pager ^a | Home Phone | Address |
|-----------------------|------------|--------------------|------------|---|
| Christine B. Crandall | 6-3441 | 6508 | 524-1752 | 11040 N. River Road Idaho Falls, Idaho 83406 |
| Russell M Crawford | 6-6057 | 7330 | 521-5501 | 3883 E. 200 North Rigby, Idaho 83442 |
| N. Kent Dyet | 6-3336 | 5003 | 357-5228 | 660 E. 1500 North Shelley, Idaho 83274 |
| Randy K. Elwood | 6-6708 | 5070 | 522-0864 | 3575 Grove Lane Idaho Falls, Idaho 83404 |
| David R. Harvey | 6-6544 | 7413 | 529-1933 | 2170 Baltic Avenue Idaho Falls, Idaho 83404 |
| D. Lynn Humphries | 6-4736 | 6616 | 523-2270 | 405 Highland Drive Idaho Falls, Idaho 83402 |
| Michael D. Sandvig | 6-6140 | 7314 | 529-9311 | 1985 E. 25 th Street Idaho Falls, Idaho 83404 |
| Kevin E. Streeper | 6-6151 | 5032 | 745-6598 | 7008 E. 300 N. Rigby, Idaho 83442 |
| Silas C. Versage | 6-6682 | 6312 | 745-0813 | 282 N. 4200 East Rigby, Idaho 83442 |
| James P. Zonar | 6-6799 | 7124 | 528-6808 | 860 Windrow Circle Idaho Falls, Idaho 83404 |

a. To reach a pager, dial 526-4444, then enter the pager number and the number to be called.

11.5 Emergencies, Recognition of Warnings, and Response

11.5.1 Emergency Recognition and Response

All site personnel should be constantly alert for signs of potentially hazardous situations including signs and symptoms of chemical or radiological exposures or releases. Site personnel will be trained on the methods, signals, and alarms used to convey “EVACUATION” and “TAKE COVER,” and on immediate response actions. These immediate response actions include:

- For an evacuation of the site, site personnel will assemble at the west side of Building 607 in the parking lot. This location is upgrate and generally upwind from the site. Personnel accountability will be performed at this location.
- For a take cover at the site, site personnel will take cover in the TAN OU 1-07B GWTF Building or Building 607.
- For an evacuation or a TAKE COVER at TAN, site personnel will follow TAN evacuation or take-cover procedures.

- **FOR ASSISTANCE FROM THE INEEL FIRE DEPARTMENT, SITE PERSONNEL WILL USE RADIO CHANNEL 7 “WCC/TRF” FREQUENCY FOR TAN OR WILL CALL 777, WHICH IS THE INEEL SITE EMERGENCY TELEPHONE NUMBER, OR 526-1515, WHICH IS THE WCC.**
- At least two persons with current Medic/First-Aid training will be present at the task site to render first aid. For serious injury, assistance from the INEEL fire department will be summoned. All occupational injuries/illnesses will be reported promptly to the INEEL OMP at 526-1596.
- For incipient fires, site personnel will use the TAN fire department. For fires that cannot be handled with hand-held extinguishers, assistance from the INEEL fire department will be summoned. All fires of any size will be reported promptly to the INEEL fire department even if site personnel have extinguished the fire.
- For spills of hazardous/radiological material, site personnel will not expose themselves to hazardous conditions beyond their training and qualification for HAZWOPER. If abnormal radiological situations are present, then INEEL MCP-124, “Response to Abnormal Radiological Situations,” will be followed. For large spills, assistance from the INEEL fire department will be summoned. All spills will be reported promptly to the INEEL Spill Notification Team at pager #6400.

If spills are small enough to be safely contained at the site, site personnel will handle spill control by taking the following immediate spill response actions:

Untrained site personnel (or if the material characteristics are unknown) shall:

- **Evacuate** and **isolate** the immediate area
- Seek **help** from and **warn** others in the area
- **Notify** the assigned point of contact or field team leader or CE and the HSO.

Trained site First Responders at the Awareness Level shall:

- Seek **help** from and **warn** others in the area
- **Stop** the spill, if it can be done without risk (e.g. return the container to the upright position, close valve, shut off power, etc.)
- **Provide** pertinent information to the assigned point of contact or field team leader or CE and the HSO
- **Secure** any ventilation paths and ensure that an RCT surveys the area to determine the extent of a radiological material spill and/or an IH surveys the area to determine the extent of a chemical spill.

The nearest INEEL fire station is located at TAN. Fire department personnel have response capabilities for first aid, medical emergencies, transport, fires, and HAZMAT spills.

Figure 11-1 shows the route to the nearest medical facility, locations of nearby fire stations, site and facility evacuation routes, and evacuation pick up locations.

Responsibilities during an emergency at the site are as shown in Table 11-3.

An emergency drill will be conducted at the start of project activity. The purpose of the drill is to familiarize employees with their respective emergency response actions. Additional drills may be conducted at the discretion of the project. **Any radio or telephone communications that are included in drills shall be immediately preceded and followed with the statement : “This is a drill.”** Each drill or actual emergency at the task site will be followed by a critique and any deficiencies that are identified in the response plan, procedures, or actions will be corrected.

11.5.2 Alarms

Alarms and signals are used at the TAN facility and INEEL to notify personnel of abnormal conditions that require a specific response. These include radiation-monitoring alarms denoted by fast ringing bells and fire alarms, which vary from building to building within the TAN facility. Responses to these alarms are addressed in the general employee training. In addition to the alarms previously described, emergency sirens located throughout the TAN facility serve as the primary means for signaling emergency TAKE COVER or EVACUATION protective actions. These alarm and communications systems have been disabled at the Site as part of the D&D process. Even though the installed systems have been taken out of service, project workers should still be able to hear the audible alarms from the adjacent buildings where these systems are still functional. To better ensure personnel safety, the project has established a separate system of emergency signals based on hand-held air horns. These signals are described in Table 11-4. Actions to be taken by project personnel in response to TAKE COVER and EVACUATION alarms are described next.

11.5.2.1 Take Cover. Radiation or HAZMAT releases, weather conditions, or other events or emergency conditions may require that all personnel take cover indoors in the nearest building. A TAKE COVER protective action may be initiated as part of a broader response to an emergency situation and may precede an evacuation order.

The order to TAKE COVER is usually announced by activating the TAN facility emergency siren. The signal to take cover is a CONTINUOUS SIREN that can be heard throughout the TAN facility area. Remember, STEADY = STAY. But, the order to TAKE COVER can also be given by word of mouth, radio, or voice paging system. When ordered to TAKE COVER, project personnel shall place the site in a safe condition (as appropriate) and then seek shelter in TAN OU 1-07B, building 607, or the nearest available building. Vehicles may be used for shelter if there are no buildings nearby. Eating, drinking, and smoking are not permitted during TAKE COVER conditions.

Project RADCON, IH, and HSO personnel will assist and direct all workers exiting from radiological contamination areas during a TAKE COVER alarm.

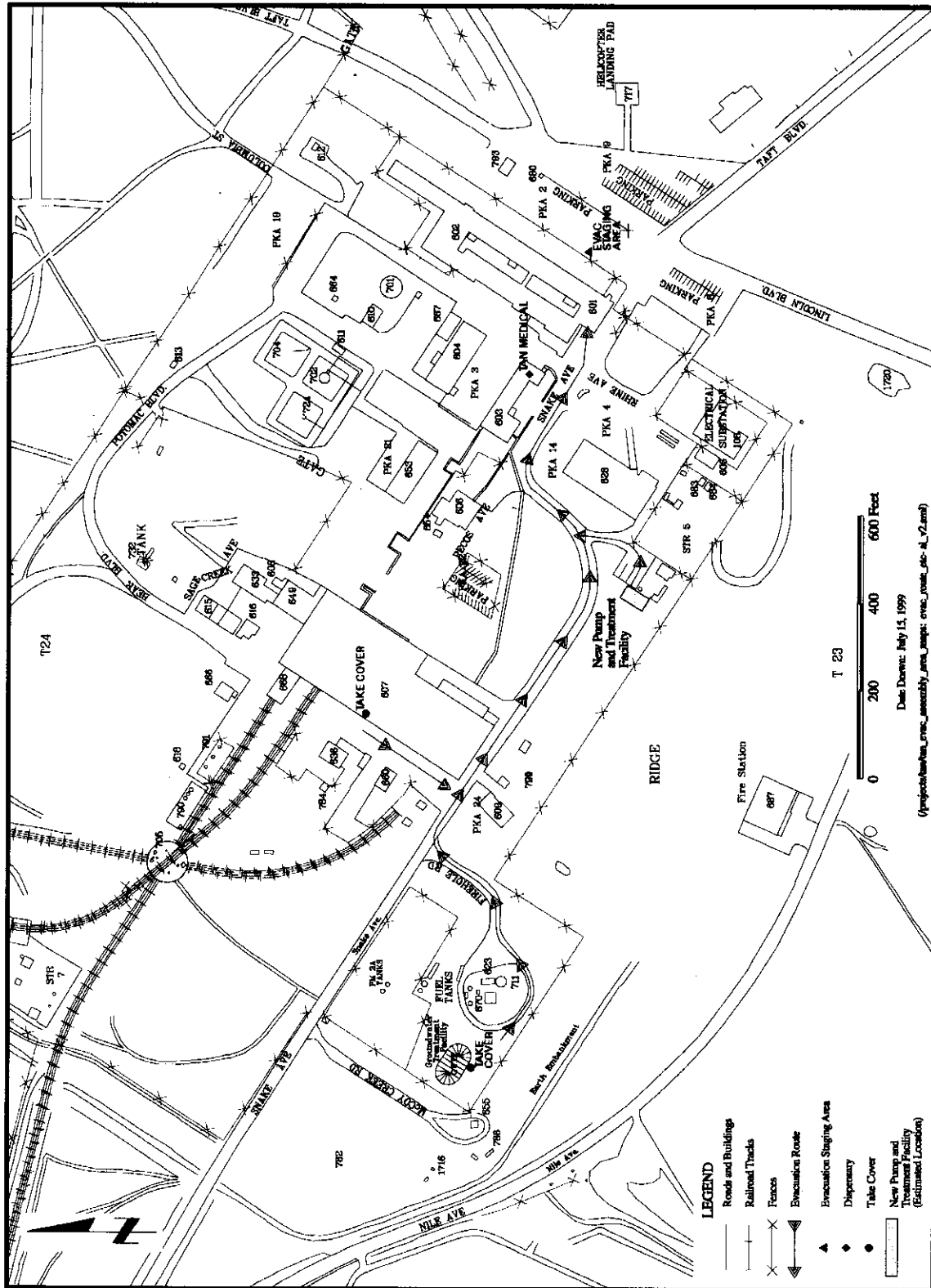


Figure 11-1. Map showing the route to the nearest medical facility, locations of nearby INEEL fire stations, site and facility evacuation routes, and evacuation pick up locations.

Table 11-3. Responsibilities during an emergency.

| Responsible Person ^a | Action assigned |
|---------------------------------|---|
| CE, JSS | Contact the INEEL site emergency telephone number or the WCC |
| CE, JSS | Signal evacuation or take-cover |
| CE, or task personnel | Provide first-aid |
| HSO, FTL, employees | Report occupational injuries/illnesses to the OMP |
| TAN Fire Department | Extinguish fires (incipient fires only) |
| CE, JSS, FTL | Report incipient fires to the INEEL fire department |
| Site Personnel | Contain spills (within level of training) |
| CE | Report spills to the INEEL Spill Notification Team |
| CE | Assemble Industrial Safety/Industrial Hygiene/Radiological Control team |
| CE | Contact the TAN shift supervisor |
| CE | Contact the emergency action manager or the EC |

a. The environmental affairs spill response categorization/notification team must also be contacted immediately via pager #6400.

Table 11-4. Project internal and backup emergency air-horn signals.

| Device or Communication Method | Signal and Associated Response |
|--------------------------------|---|
| Air Horns (blasts) | One long Blast Emergency evacuation, as stated above. |
| | Two short Blasts Nonemergency evacuation of immediate work area as stated above. Proceed to project assembly area. |
| | Three long Blasts All clear, return to Site. |

11.5.2.2 Total Area Evacuation. A total area evacuation is the complete withdrawal of personnel from the site and the entire OU 1-07B area. The evacuation signal is an ALTERNATING SIREN that can be heard throughout the OU 1-07B. Remember, ALTERNATE = EVACUATE. A single long blast of the air horn serves as the project's alternate emergency evacuation alarm. But, the order to evacuate can also be given by word of mouth, radio, or voice paging system. When ordered to EVACUATE, project personnel shall place the site in a safe condition (as appropriate) and then proceed along the specified evacuation route to the designated assembly area, or as directed by the EC. Eating, drinking, and smoking are not permitted during emergency evacuations.

Project RADCON, IH, and HSO personnel will assist and direct all workers exiting from radiological contamination areas during an EVACUATION alarm.

11.5.2.3 Local Area Evacuation. A local area evacuation is the complete withdrawal of personnel from the site, but it does not require the complete evacuation of the entire OU 1-07B area. A single long blast of the air horn serves as the project's emergency evacuation alarm. But the order to evacuate can also be given by word of mouth, radio, or voice paging system. When ordered to evacuate the local area project personnel shall place the site in a safe condition (as appropriate) and then proceed along the specified evacuation route to the assembly area designated for local area evacuations, or as directed by the field team leader. Eating, drinking, and smoking are not permitted during emergency evacuations.

Project RADCON, IH, and HSO personnel will assist and direct all workers exiting from radiological contamination areas during an evacuation alarm.

11.5.3 Personnel Accountability/Area Warden

Project personnel are required to evacuate the site in response to TAKE COVER, EVACUATION, and LOCAL EVACUATION alarms. In each case the project area warden shall account for the people present on the site at the time the alarm was initiated. The CE or designee serves as the area warden for the project and completes the personnel accountability based on the sign-in roster used to control site access. As described next, the method used to report the results of the accountability process varies depending on the nature of the emergency event.

For total area evacuations, the OU 1-07B command post is activated and all personnel will gather at the evacuation assembly area designated by the EC. In this situation the project area warden reports the result of the accountability process to the OU 1-07B PAL.

The OU 1-07B command post is also activated for TAKE COVER alarms; however, personnel should remain in the closest appropriate shelter. In this situation a complete personnel accountability report is not required, but the project area warden should report the result of the accountability process to the OU 1-07B command post (or the TAN shift supervisor) to keep the EC informed.

The TAN command post may not be activated for a site local area evacuation. In this situation a complete personnel accountability report is not required, but the project area warden should report the result of the accountability process to the TAN shift supervisor.

11.5.4 Notifications

As directed by the office of the Secretary of Energy, the TAN area director is responsible for immediately notifying the DOE and local off-Site agencies of all significant abnormal events that occur at the TAN. This duty is in addition to the notification requirements established in INEEL procedures for events that are categorized as emergencies or unusual occurrences. For this reason the project shall immediately report all abnormal events that occur on the Site to the TAN shift supervisor and to the WCC. The WCC will in turn notify the appropriate INEEL emergency response resources and other INEEL facilities as appropriate. The TAN shift supervisor and the WCC share the responsibility for notifying the TAN facility manager, EC, and area director as appropriate. Normally the CE is responsible for making the event notifications described above. The CE may make additional notifications as listed in Section 11.8 at the discretion of project supervision.

The EC is the single point of contact between the project and the INEEL ERO and off-Site (off-INEEL) people or agencies. The EC will make all off-Site notifications and all concerned media requests. Table 11-5 provides the project notification responsibilities.

Table 11-5. Project notification responsibilities.

| Activity | Title | Phone | Pager | Radio |
|------------------------------|--|--------|-------|---------|
| Construction Engineer | | | | |
| Notifies | Fire Department | 777 | | KID 240 |
| Notifies | Warning Communications Center (WCC) | 6-1515 | | KID 240 |
| Notifies | TAN Shift Supervisor/EC | 6-9507 | | 6-Net |
| Notifies | For spills: Environmental Affairs Spill Team | | 6400 | |
| Notifies | RD/RA Project Manager | 6-5776 | 7700 | |
| Notifies | TAN DOE-ID Facility Representative | 6-8838 | 6250 | |
| RD/RA Project Manager | | | | |
| Notifies | OU 1-07B Project Manager | 6-8517 | | |
| Notifies | WAG 1 Project Manager | 6-8226 | | |
| WAG 1 Project Manager | | | | |
| Notifies | ER Director | 6-1559 | 5013 | |
| Notifies | ER ESH&QA Manager | 6-9956 | | |

11.5.5 Evacuation Routes

The TAN maintains primary and secondary evacuation routes (see Figure 11-1). These routes may be used in response to a total TAN area evacuation as directed by the EC. Copies of the evacuation routes shall be posted at the site and in the project offices.

The project area evacuation plan and TAN evacuation assembly areas are shown in Figure 11-1. In the event that the site is evacuated (but not the entire TAN area) personnel shall assemble in the appropriate facility evacuation areas or as directed by the field team leader. If a total area evacuation of the TAN is ordered then project personnel shall relocate to the primary evacuation assembly area or as directed by the EC. Figure 11-1 also shows the route to the CFA Infirmary (CFA-1612).

11.6 Reentry and Recovery

11.6.1 Reentry

During an emergency response it is sometimes necessary to reenter the scene of the event. Reasons for performing reentries may include the following:

- Personnel search and rescues
- Medical first-aid responses
- Safe shutdown actions
- Mitigating actions
- Evaluate and prepare damage reports
- Radiation and/or HAZMAT surveys.

Reentries shall be carefully planned to ensure that personnel are protected from harm, and to prevent initiating another emergency event. Reentry planning is undertaken as a graded approach depending on the nature of the initiating event.

11.6.2 Recovery

After the initial corrective actions have been taken and effective control established, response efforts will shift toward recovery. Recovery is the process of assessing postevent/emergency conditions and developing a plan for returning to preevent/emergency conditions when possible and following the plan to completion. The EC is responsible for determining when an emergency situation is sufficiently stable to terminate the emergency and enter the recovery phase. The TAN Facility Manager will appoint the recovery manager.

11.7 Critique of Response and Followup

A review and critique will be conducted following all emergency events, drills, and exercises at INEEL. In some cases an investigation may be required prior to commencing recovery actions. For this reason, care should be exercised to preserve evidence when appropriate.

11.8 Telephone/Radio Contact Reference List

Table 11-6 lists the points of contact for the project. This list will be posted at the entrance to the contamination reduction corridor and in site offices.

Table 11-6. Project emergency contact list.

| Contact Title | Contact Name | Phone Number/ Radio Net | Pager Number |
|-------------------------------------|----------------|----------------------------|-----------------|
| Warning Communications Center (WCC) | | 777, 6-1515, "KID-240" | |
| TAN Shift Supervisor | | 6-9504 | 7414 |
| TAN Area Director | George Haymer | TBD | TBD |
| TAN Tenant Liaison | Llew Murphy | 6-3123 | 6439 |
| First-Aid (TAN Medical Dispensary) | | 777, 6-6763 | |
| Occupational Medical Program | | 6-1596 | |
| Fire/Security | | 777 | |
| ER Construction Engineer | M. Bartholomei | 6-7460 | 7705 |
| ER RD/RA Project Manager | Joe Rothermel | 6-5776 | 7700 |
| ER Project Manager | Al Jantz | 6-8517 | 6699 |
| ER RD/RA Project Engineer | Gary Mecham | 6-6766 | 7709 |
| ER Radiological Control Engineer | TBA, as needed | | |
| ER Industrial Hygiene | Tekla Stacey | 6-3097 | 5271 |
| Field Team Leader (FTL) | TBA, as needed | | |
| Job Site Supervisor (JSS) | TBA, as needed | | |
| TAN Health & Safety Officer | Tekla Stacey | 6-3097 | 5271 |
| ER S&H Compliance Officer | Lawrence Blair | 6-4113 | 5869 |
| ER Environmental Compliance Officer | Kathy Davis | 6-4949 | 7883 |
| ER ESH&QA Manager | C. R. Chebul | 6-9566 | |
| TAN ESH&QA Manager | Mike Sandvig | 6-6140 | 7314 |
| TAN DOE-ID Facility Representative | Rod Taft | 6-8838 | 6250 |
| TAN DOE-ID Facility Representative | Mark Shaw | 6-6442 | 6903 |

The reference list as shown in Table 11-7 will be posted at each support zone and to the offices of those assigned notification responsibilities.

11.9 TAN OU 1-07B Notification Responsibilities

Table 11-7. TAN OU 1-07B notification responsibilities.

| | Responsible Person or Organization | Phone | Pager | Radio |
|-------------|--|----------|-------|---------|
| CE Notifies | INEEL Emergency Response Telephone Number | 777 | — | KOK 130 |
| CE Notifies | Warning Communications Center (WCC) | 526-1515 | — | KID 240 |
| CE Notifies | INEEL Spill Notification Team (SNT), for spills | — | 6400 | — |
| CE Notifies | INEEL Occupational Medical Program, for occupational illness or injury | 526-1596 | — | — |
| CE Notifies | TAN Shift Supervisor | 526-9504 | 7414 | — |
| CE Notifies | TAN Area Director | 526-0047 | 4260 | — |
| CE Notifies | TAN Emergency Action Manager or Emergency Coordinator | 526-9504 | 7414 | — |
| CE Notifies | ER ESH/QA Manager | 526-9566 | — | — |
| CE Notifies | ER S&H Compliance Officer | 526-4113 | 5869 | — |
| CE Notifies | ER Project Manager | 526-8517 | 6699 | — |
| CE Notifies | ER RD/RA Project Manager | 526-5776 | 7700 | — |
| CE Notifies | TAN DOE Facility Representative | 526-8838 | 6250 | — |

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